

TREATMENT OF EPITHELIOMA OF THE ALA OF THE NOSE.

BY ELLSWORTH ELIOT, JR., M.D.,

OF NEW YORK,

ASSISTANT ATTENDING SURGEON TO THE PRESBYTERIAN HOSPITAL; CHIEF
IN SURGERY TO THE VANDERBILT CLINIC; ASSISTANT DEMON-
STRATOR OF ANATOMY IN THE COLLEGE OF
PHYSICIANS AND SURGEONS.

I.

PLASTIC operations, by which defects of various parts of the nose are remedied, have not proved particularly successful. If the entire nose has been destroyed, any attempt to provide an efficient substitute by operative procedure is apt to prove futile.

Of the individual parts of the nose, however, none is more difficult to replace than the alæ.

This is certainly the most delicate part of the external nasal apparatus, being endowed with power of movements that result in the expansion and contraction of the nostril, and capable, through the medium of its cartilages, of withstanding atmospheric pressure, and of thus preventing the mechanical closure of the nostril, when for any reason the air in the nasal passages is exhausted, creating a temporary vacuum in that cavity.

These cartilages are several in number, delicate in their construction, and connected with one another by means of fibrous tissue, giving a compact whole to the alæ.

The preservation of the integrity of the alæ is very important, not only from a cosmetic point of view, but also to provide a suitable passage-way, through which respiration may take place, and in which the air as it passes to the lung may be freed from impurities, which might prove injurious if inspired into the lower air-passages. Usually, with the mouth and one nostril closed,

sufficient air may pass through the open nostril to prevent even the slightest discomfort to the person who tries this experiment, but if, for any reason, the nostril becomes partially occluded, as, for example, by the congestion of an acute or chronic inflammatory process or by any of the hypertrophic changes concomitant with chronic catarrh, involving the turbinated bones, then the passage of air through this narrow channel is impossible, and, as a result, air must pass through the open mouth without suitable filtration.

The change in the voice of a patient whose nostril does not readily admit the passage of air is also a disagreeable feature in many of these cases. This becomes decidedly nasal and indistinct, and is a source of constant annoyance to the patient and his friends.

When from any cause the ala is destroyed, be it from traumatism or syphilis, or when it is necessary to sacrifice this part in the removal of an epithelioma, its restoration, and that of the adjoining portion of the nostril, in such a way as to again be able to transmit air becomes a matter of the greatest importance.

This may be accomplished by a plastic operation, in which the gap, produced by the removal of the normal or diseased ala, is closed by a flap, which, taken from the corresponding cheek or from the opposite side of the nose, is sutured to the edges of the defect. The new ala thus formed consists externally of skin and subcutaneous—with perhaps some muscular—tissue, and must necessarily have internally a raw surface that is eventually destined to be covered in the process of cicatrization with a layer of cells, which shall serve the purpose of a mucous membrane.

These operations are planned naturally in such a way as to avoid unnecessary scarring, and at the same time it is advisable to preserve symmetrical facial expression by taking the flap as near the median line as possible, and so avoid damage to the underlying muscles of the face and the filaments of the facial nerve that innervate them.

The primary result is frequently good. The defect is closed. There is a poor imitation of a nostril, which, however, admits

air, and the cosmetic appearance of the patient is not seriously damaged.

Unfortunately, however, this flap is not capable of resisting atmospheric pressure, and with every inspiration it is pressed inward towards the nasal cavity, thus constricting the orifice of the new nostril.

As this statement does not entirely agree with the mechanism of the normal nostril, as taught by physiology, a few words of explanation will not be amiss. Under normal circumstances, the effect of a forced inspiration upon the size of the nostril depends upon the behavior of the muscles that control the size of this opening. With contraction of the dilator muscles, the nostril increases in size, and as long as contraction continues it is enabled to support atmospheric pressure in the same way as is the cavity of the thorax, when its diameters are increased by the contraction of the muscles of inspiration, enabled to withstand the effect of a similar pressure. If, on the other hand, the dilators do not contract (and this is perfectly possible) a sudden inspiration exhausts the air of the upper nasal passage, and to assist in filling this temporary vacuum, the alæ relaxed, are driven inward and flattened by the pressure of the outside atmosphere.

The new ala, formed by the plastic flap, is, of course, not furnished with any muscular apparatus, and is consequently incapable of any change in calibre on the volition of the patient. The size of its orifice is therefore diminished to a greater or less extent by each inspiration, according to its depth.

The constantly-increasing diminution in size of the new nostril, which, from its very nature, is necessarily permanent, is also due to the subsequent behavior of the cicatricial tissue, which eventually covers the granulating surface of the inner side of the flap, forming the inner wall of the new ala, and the outer wall of the nasal passage. This follows the law of all scar tissue, in that it contracts, and as a natural sequence the outer surface of the new ala, from being originally convex, becomes later flat, and then puckered, or even slightly concave, as it is drawn more and more towards the nasal cavity. This, of course, not only diminishes the size of the new nostril, but produces an asymmetry between the two alæ, yielding an undesirable result.

For the purpose of obviating these defects so far as possible, the following operation was performed in the case herewith reported, with a very satisfactory result.

CASE I.—C. F., male, aged forty-nine years, was first seen by me in consultation with Dr. B. F. Vasburgh, June 25, 1893.

Three months before this time a "pimple" had appeared upon the left ala of the nose, which was scratched by the patient, and became thereafter a "running sore," continually increasing in size; no tubercular or specific family or personal history. Has had for years past a moderate naso-pharyngeal catarrh.

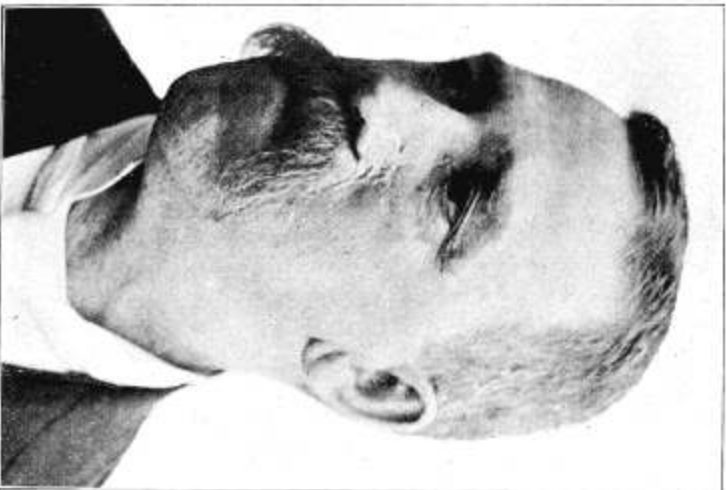
The patient neglected to consult a physician until June 18, 1893, when caustic was applied to the growth, resulting in a still further increase in size.

Examination, June 25, reveals an oval growth, involving the entire right ala of the nose, markedly elevated above the surrounding surface of the normal skin, the centre of which is moderately excavated, and in a condition of typical epitheliomatous ulceration, which extends over nearly the entire area of the tumor. In its vertical diameter the growth measures seven-eighths of an inch; in its transverse, five-eighths of an inch; its surface is densely hard, its edges indurated and markedly everted; the growth, however, being moderately distinct from the surrounding parts.

Inferiorly it extends almost to the junction of skin and nasal mucous membrane; the mucous membrane forming the interior of the nostril is not ulcerated, but evidently adherent to the overlying growth.

There is a moderate discharge of unhealthy matter from the surface of the growth. No glandular enlargement can be detected. The patient's general health is excellent.

Operation—Ether.—The epitheliomatous growth was thoroughly removed, leaving a quadrilateral defect where the ala of the nose had previously existed. The inferior side of the mass removed consisted of the upper and external wall of the nostril. The internal of the tissues of the side of the nose, three-eighths of an inch from the median line of the dorsum, extending into the nasal passage, the superior of similar tissues, extending down to the natural fold between the nose and the side of the face, while the external was composed of tissues lying in the above groove, which is the line of demarcation between the nose and the face. From this it can readily be perceived



Case I.—From beneath. Two years and four months after operation. Side view.

Case II.—Four months after beginning of treatment.

that the whole left ala of the nose, including its cartilages, was removed, the outer surface presenting the new growth, the inner surface consisting of mucous membrane on the point of ulceration, to which the epithelioma had become adherent.

The line of incision everywhere penetrated the nasal cavity, and in being carried down through the above-mentioned groove left only a very slight portion of the ala projecting from the anterior aspect of the face.

Hæmorrhage was considerable from the edges of the defect, and absolute control was difficult, owing to the dense structure of the tissue through which the incision passed.

This was, however, finally accomplished by ligature and pressure, and the second step of the operation followed.

This consisted of mapping out a slightly irregular quadrilateral flap, convex inferiorly, its other sides perfectly straight, from the tissue of the front of the face immediately external to the defect.

Its base of attachment corresponded to the situation of the outer side of the defect, being here left attached to the superior maxilla, its diameter in the transverse direction being about one-third greater than the similar diameter of the defect, the thickness of the flap being composed of skin, subcutaneous tissue, and even muscle, the thickness of the flap being equal throughout its entire extent, especially so at its circumference, which is to be sutured eventually to the margin of the defect.

In the dissection of this flap from the tissues of the face the facial artery is necessarily divided along its inferior edge, and some terminal branches of the ophthalmic, which descend from the inner angle of the orbit to meet the terminal branches of the facial, are divided along its superior edge. Although in this way the blood-supply of the flap is materially diminished, yet it was found that the anastomotic circulation was sufficiently abundant to preserve its vitality through the attachment of its *inner* edge or base to the superior maxilla.

As a matter of fact, the facial artery penetrates the flap at a distance so near the base of the ala that it would be possible to leave it undivided until the vitality of the flap in its new position is assured through other sources. In order, however, to make a nostril similar in shape to the normal opposite nostril, the dissection of the flap, inferiorly, must be carried through the facial artery to the point of the attachment of the flap to the bone, and it is better not to postpone this step of the operation.

After control of hæmorrhage, the flap thus formed is turned upon itself (or "everted") on an axis, passing through its base of attachment to the bone over ninety degrees until its outer edge comes in contact with the inner edge of the defect, which are then sutured together with fine silk.

The superior edge of the flap should be in contact with the superior edge of the defect, and secured in this position by sutures. The inferior edge forms the circumference of the new nostril.

The internal surface of the new ala is composed of skin, while the external surface presents a raw converse aspect of subcutaneous and muscular tissue.

The final step of the operation consists in the covering of the denuded area with skin-grafts. These should preferably be two in number, one for the convex surface of the new ala, the other for the quadrilateral space, on the anterior aspect of the face from which the flap was taken. The junction of these two grafts represents the furrow that is to be the line of demarcation between the new ala and the face, which is placed slightly external to the original line, the exact distance being the breadth of the base of the flap.

The ordinary dressing for such cases is then applied, the new nostril being moderately packed with sterilized gauze.

The patient reacted well from the effects of the operation, having been under the influence of the anæsthetic for more than an hour.

Two points of interest immediately presented themselves at the conclusion of the operation.

(1) Would the flap, in its position of semitension, receive sufficient blood to prevent sloughing?

(2) If it lived, would its necessarily-impaired vitality be sufficient to nourish and to cause to grow to its surface the grafts that had been placed upon it? Judging from the case just cited, both of these questions can be answered in the affirmative.

The face is one of the most vascular parts of the body, and, although the pedicle of the flap was no more than a third of an inch thick, it received sufficient nourishment from the branches of the facial, given off before its division, and from the terminal branches of the internal maxillary to prevent its sloughing.

It was, of course, more difficult to foresee the subsequent fate of the grafts. It was believed, however, that even if failure of union did occur that a secondary attempt would prove successful as soon as

the surface of the new ala had assumed a granulating condition. There was no need of this procedure, however, as the primary attempt proved successful, and the grafts became firmly attached to the underlying surface of the flap. This took place by a process differing from the usual one only in its duration, inasmuch as fully thirty days elapsed before the process was completed.

Six weeks after the operation, the patient had an ala, of which both the external and internal surfaces were covered with skin, and a nostril which readily admitted air, and which remained patent in both inspiration and expiration. The immediate result of the operation was satisfactory. The cosmetic effect was good, the new nostril not materially differing from its normal fellow. The external surface of the new ala, to be sure, presented a roughened, uneven appearance, and its color was decidedly paler than the surrounding skin.

That portion of the face from which the flap had been dissected presented a depression, which, however, was gradually becoming more shallow. Could this condition be maintained, the success of the ultimate result would be assured.

One year has passed since the operation. During this time the uneven surface of the flap has gradually become more and more smooth, the color also has improved, closely resembling the surrounding skin. The size of the nostril remains the same, the surface of the ala is almost as convex as on the normal side. The original situation of the flap no longer presents a depression.

The tension of the flap seems to have provided it with an elasticity sufficient to support atmospheric pressure without the danger of collapse. If an ordinary piece of thin paper, quadrilateral in shape, and its surface flat, it carried through an arc of ninety degrees around one of its sides as an axis, which is securely fastened to any suitable structure, the resultant convex surface will support considerable pressure, and when depressed will, in virtue of its elasticity, tend to assume its former rounded appearance.

A great advantage, however, undoubtedly results from this kind of plastic operation, namely, that due to the presence of the natural skin, which, when the operation is completed, forms the outer wall of the nasal passage and the inner surface of the new ala.

This cannot undergo the gradual and constant contraction

of cicatricial tissue, which, of course, is a great objection to flaps, lined by raw surfaces, in those varieties of plastic operations, previously mentioned, in addition it serves another important function.

Cicatricial tissue is very prone to break down and become ulcerated, especially when subjected to any form of irritation. In the nasal cavity irritation frequently arises in the discharge associated with inflammatory processes, and in people the subject of chronic nasal catarrh such discharges are very apt to be more or less constantly present, and the ulceration excited by them is therefore apt to be correspondingly intractable.

This is especially serious if, as in the case just cited, the ala has been removed for epithelioma, as the presence of such ulceration would be sure to favor a local recurrence of the disease. To be sure, the base of the outer wall of the old ala is left as a stump in the nasal cavity, but this is of small compass, and readily cicatrizing gives no further trouble. In the past year there has been no evidence at any time of intranasal ulceration, neither has any recurrence taken place. At the end of two years the condition is unchanged.

Naturally, knowledge derived by the treatment of a single case is frequently changed by subsequent experience with other cases, but the one in question presents sufficient interest to warrant its publication at the present time.

II.

Caustic applications to malignant growths are invariably contra-indicated. Their thorough and wide removal by the knife, in the early stages of development, give the patient the greatest chance of permanent cure. It is only in this way that the entire growth, together with the lymphatics by which the growth gradually or rapidly invades the general system, can be successfully excised. If any fragment of the peripheral portion of the tumor, or of its exciting cause (whatever this may be), gains entrance into a neighboring vessel, it is rapidly carried to such a distant part of the body that no "local" operation, however thorough, will completely eradicate the disease.

No one denies the possibility of removal by caustic or other destructive agent of as much of the mass of a malignant tumor

of several months' duration as can be appreciated by palpation. In this sense such growths may be said to consist of two general portions, one macroscopic, the other microscopic; it is this latter portion that makes the most radical of operative procedures uncertain in their ultimate cure of the patient, and it is just this portion that caustic applications, no matter how searching, must invariably fail to remove. In fact, there is no doubt but that such applications, in certain cases, hasten the propagation of the disease into the system at large.

In all cases, therefore, the knife must be considered the surest means by which the patient is to be protected from the danger of recurrence.

This is a rule, without exception, and one that cannot be too strongly or emphatically stated.

The rapidity with which malignant growths develop, in certain parts of the body, however, varies materially. Epitheliomata above a transverse line, passing through the ala of the nose, are not only of very slow growth, but it has always been a well recognized fact that the lymphatics running from the site of such tumors are, for some reason, usually exempt from the ravages of the disease. Older writers denied the possibility of such an occurrence, and considered any accidental lymphatic enlargement purely inflammatory. This, however, is not always the case.

Within the past year I have seen a rodent ulcer, involving the tissues under the left eye, of several years' standing, followed, after its complete and thorough excision by an able surgeon, by recurrence in the lymphatic glands beneath the angle of the jaw, the recurrence eventually terminating the life of the patient.

The fact of the escape of the lymphatics, however, in a majority of these cases, seems to justify an attempt, on the part of the surgeon, to remove by caustic such growths only when they have existed for years, and when the patient absolutely refuses the surer, quicker, and less painful relief afforded by the knife.

Such an attempt in the case just cited was certainly contra-indicated, not only because of the rapidity of growth of the tumor, but also because of the necessity of some form of plastic operation to close the defect, produced by the loss of the ala,

whether by caustic or by knife. Any plastic operation would probably have proved unsuccessful after the ala had been removed by caustic, for the reason that the edges of the gap would have been more or less uneven as well as the seat of a greater or lesser amount of inflammatory thickening, which, in itself, is capable of preventing the obtaining of primary union, so essential to the success of any plastic operation.

In the following case, however, the position of the epithelioma, the long duration of the disease, the apparent absence of lymphatic involvement, the free mobility of the growth on the underlying bone, and, most important of all, the absolute refusal of the patient to submit to an operation, notwithstanding his knowledge of the fatal character of the disease, seemed to justify an attempt to remove the growth by caustic :

CASE II.—E. B., aged fifty-four years ; previous history negative. Seven years ago patient noticed the appearance of a “warty” growth on the side of the face, just external to the ala of the nose : this very shortly afterwards became ulcerated, and has never cicatrized.

It has gradually increased in size up to the present time.

Examination reveals an irregular ulcer, extending outward from the right ala to the tissues of the face. It is about one inch long, three-eighths inch wide.

The surface is hard. Its edges hard and everted. The whole mass is freely movable upon the deeper part. The adjoining skin of the ala involved to the extent of one-quarter inch from its point of junction with the face. No lymphatic enlargement.

In the selection of a suitable caustic, one which produces the greatest degree of tissue destruction with the least degree of pain should be chosen. Caustic potash, caustic soda, arsenic, the mineral acids have been used for this purpose, but their application results in extreme pain, while the necrosis which ensues is sometimes more extensive than is desirable, and subjects the patient to the additional risk of pyæmia or other dangerous wound complications.

On the other hand, the action of chloride of zinc is more easily controlled, is attended with less pain, while the resulting albuminate affords a soil that, being destitute of nutrition, presents an effectual barrier to the entrance of germs or their products into the general system,

Applications of a paste, one-third of an inch in thickness, consisting of equal parts of flour and chloride of zinc (Canquoin), with one-twenty-fifth part of cocaine hydrochlorate was made to the epitheliomatous ulcer in question, overlapping the indurated edges of the growth. The resulting slough (usually equalling in its dimensions those of the applied paste) separated from the deeper parts in from five to seven days, leaving behind, after successive applications, a healthy granulating surface. By this means the entire growth was removed, with one-half the thickness of the adjoining portion of the ala, and the resulting ulcer, apparently healthy, cicatrized rapidly: the applications, four or five in number, were made at intervals of a week, and in seven weeks after the first application cicatrization was complete.

A most noteworthy feature of the result is to be seen in the condition of the cicatrix. This is not only much smaller than the original growth, as well shown in the accompanying photograph, but has not altered in any way the contour of the nostril or the line of the upper lip.

The primary result is, therefore, all that could be desired, from a cosmetic point of view. Whether the entire removal of the growth has been successfully accomplished time only will determine. In the experience of others, the cicatrix has frequently broken down in recurrence after a longer or shorter interval. This is to be prevented only by the thorough removal of the growth by generous, successive applications of the caustic to the base and surroundings of the ulcer, even after a healthy granulating surface has been procured. Absolute certainty of complete removal cannot, of course, in any case, be guaranteed, and even if the surgeon has been successful in this respect, the "disposition of the individual to the development of malignant growths" (if we may use the rather obscure term) may bring about a return of the growth, if not in the cicatrix, in its immediate vicinity, or even in some more distant part of the body. No recurrence after an interval of one year has taken place.

In conclusion, again, too great emphasis cannot be placed upon the superiority of the knife to the caustic, and in either case upon the necessity of keeping the patient under careful surveillance for a considerable period of time.